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AREA AND OWNERSHIP OF FOREST LAND IN DEL NORTE COUNTY, CALIFORNIA

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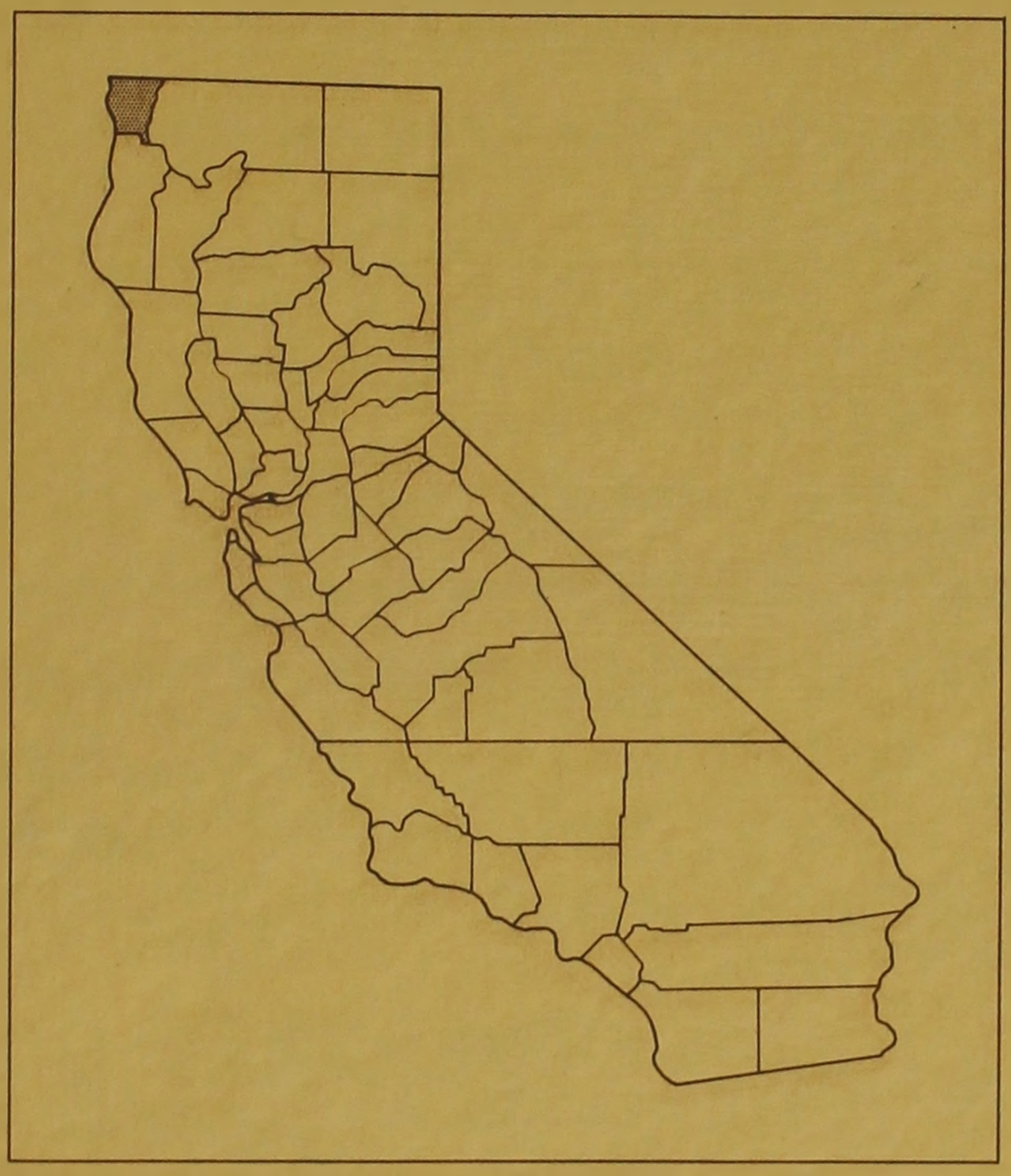

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
Stephen N. Wyckoff, Director
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CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

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The California Forest and Range Experiment
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Agriculture--Berkeley

FOREWORD

As part of a nation-wide project of the Forest Service, the Forest Survey in California has the following primary objectives:

(1) To make an inventory of all forest lands and the standing timber on those lands.

(2) To measure the current and probable future rate of timber growth, and the productive capacity of the forest lands.

(3) To determine the rate of timber depletion through cutting, fire, insects, disease, and other causes.

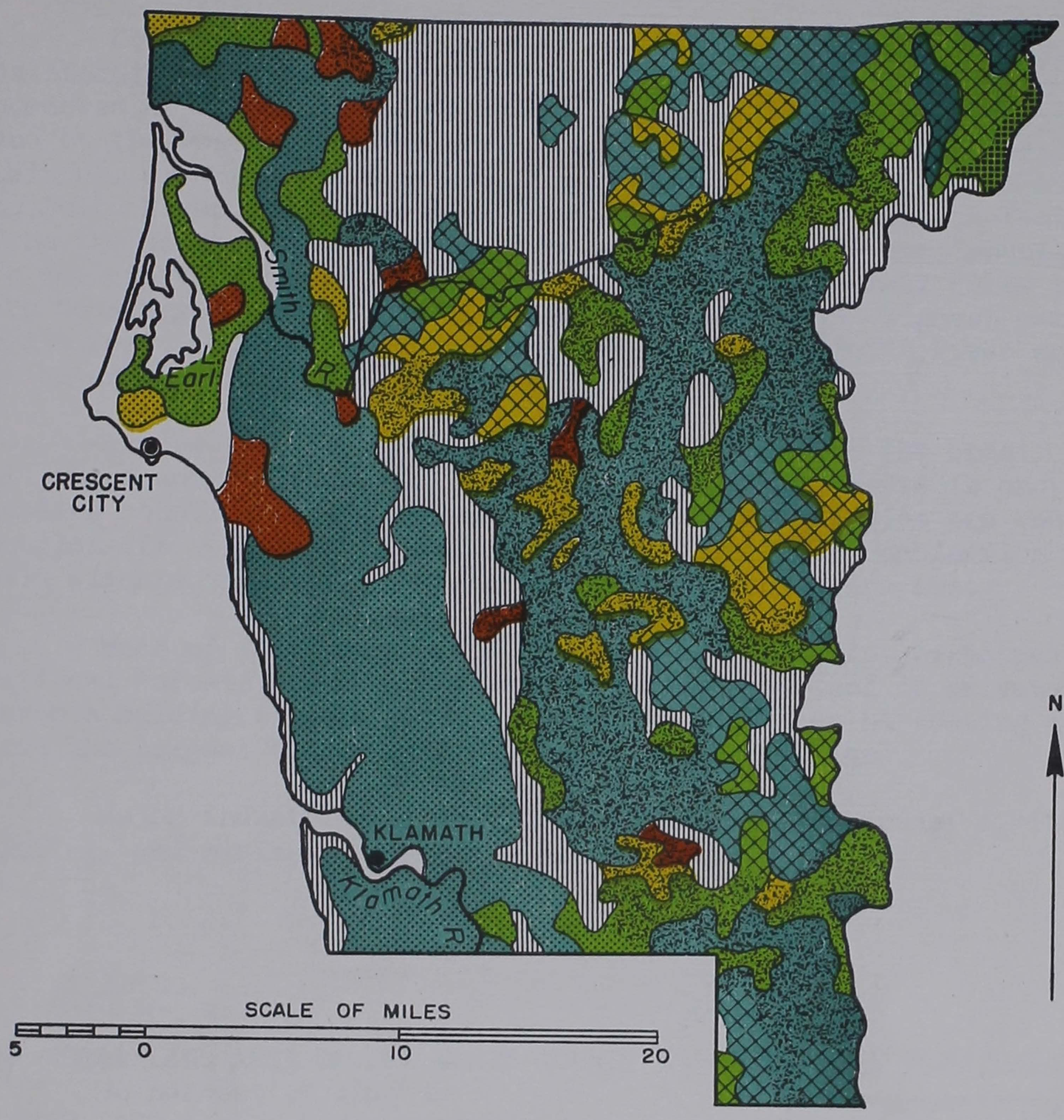
(4) To determine the present and expected requirements for lumber and other forest products.

(5) To provide, through correlation of these facts with one another and with other economic knowledge, a basis for formulating local, State, and national forest policies and management plans.

Responsibility for the work in California has been assigned the Division of Forest Economics of the California Forest and Range Experiment Station at Berkeley.

This report presents the statistics of forest area and forest land ownership in Del Norte County, California as of 1948. Besides the facts about the extent, location, and condition of all forest lands, quantitative data are given on type of ownership, size of ownership, and number and kinds of owners. Estimates of timber volume are not included because volume sampling was not designed to provide reliable volume figures at the county level.

This release is the fourth of a series of county statistical reports presenting data on area and ownership of forest land in the Redwood--Douglas-fir subregion of California. The other reports were for Mendocino, Sonoma, and Humboldt counties. A major statistical report is in progress for the subregion and will present data on areas, timber volumes, ownership, growth, and drain.



GENERALIZED TYPES AND AGE CLASSES OF TIMBER STANDS

DEL NORTE COUNTY, CALIFORNIA

TYPES

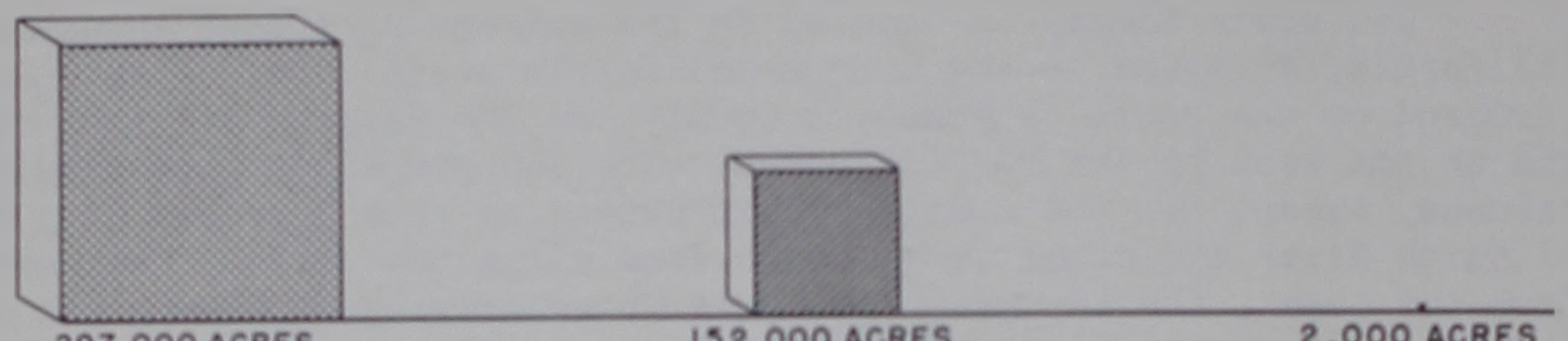
- Redwood
- Douglas-fir
- Pine-Douglas-fir-Fir
- Fir
- Noncommercial forest
- Nonforest

AGE CLASSES

- Old growth
- Young growth-old growth and large young growth
- Small young growth
- Nonstocked

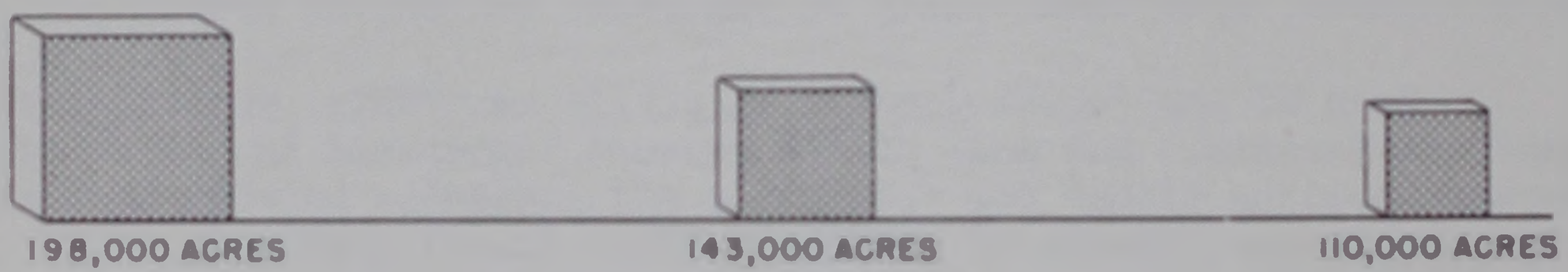
COMMERCIAL FOREST LAND

OWNERSHIP



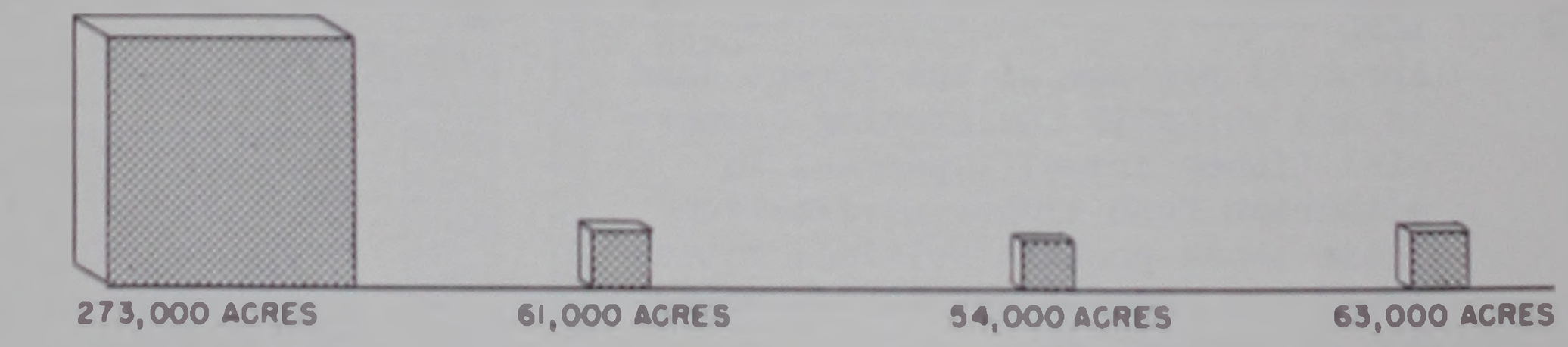
Almost two-thirds of the commercial forest land is federally owned--nearly all of this is in the Six Rivers and Siskiyou National Forests. (table 1)

TYPES



The Douglas-fir type occupies 44 percent of the commercial forest land. Stands classified as redwood occur on 32 percent of the area. The remaining 24 percent is essentially all occupied by mixed stands of pine, Douglas-fir, and fir. Actually, there is a very small acreage (less than 500 acres) of the fir type. (table 5)

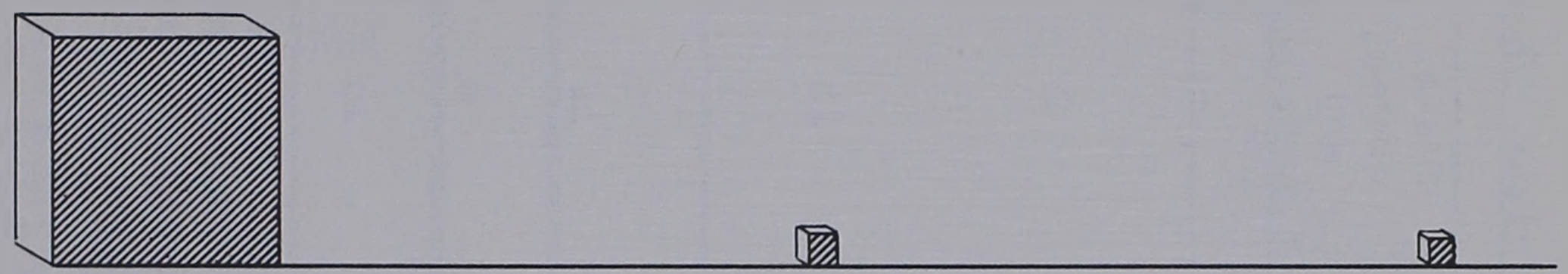
AGE CLASSES



Old growth stands occupy 60 percent of the commercial forest land. A major part of the county's merchantable timber is in these stands. The remaining commercial forest land is divided into almost equal acreages of young growth-old growth, young growth, and nonstocked stand classes. (table 7)

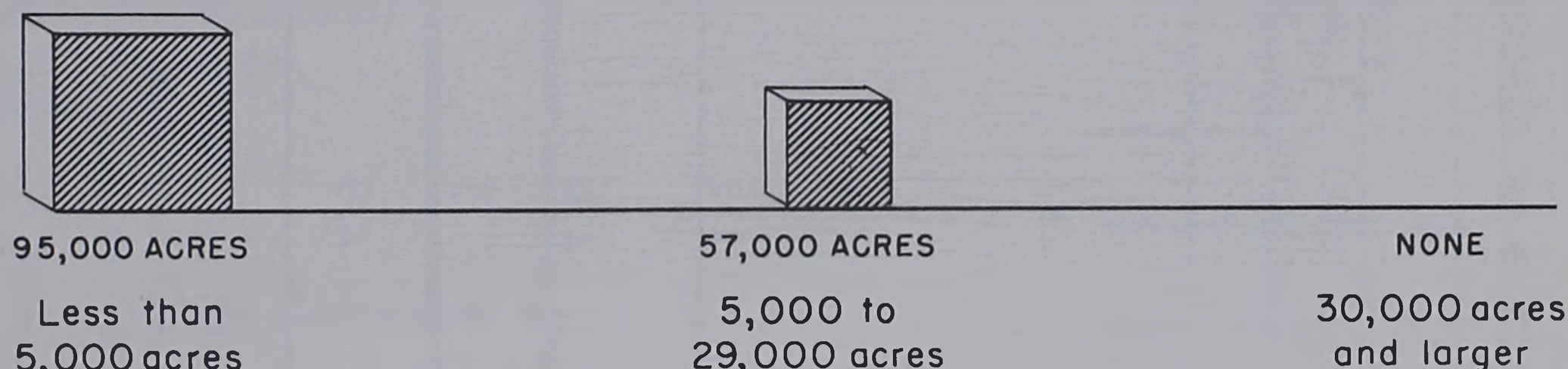
PRIVATELY OWNED COMMERCIAL FOREST LAND

TYPE OF OWNERSHIP



Corporations and persons engaged in logging and milling operations or planning future operations own 81 percent of the privately owned commercial forest land; ranchers and farmers own 10 percent; and all other types of owners, 9 percent. (table 3)

SIZE OF OWNERSHIP



62 percent of the privately owned timberland is in units of less than 5,000 acres, and the remainder is in holdings of from 5,000 to 29,000 acres. There are no private ownerships of 30,000 acres and larger. (table 6)

Table 3.- Number of ownerships and area of privately owned land by type of ownership, 1948

Type of ownership	Ownerships		Total land area		Commercial forest land	Non-commercial forest land	Non-forest land
	No.	Pct.	Thousand acres	Pct.	----Thousand acres ----		
Timber operating company	18	2.4	46	24.6	43	2	1
Timber holding company	68	9.0	16	8.6	15	1	(1/)
Timber operating individual	21	2.8	12	6.4	9	3	(1/)
Timber holding individual	88	11.7	60	32.1	56	4	(1/)
Range livestock farming company	-	-	-	-	-	-	-
Range livestock farming individual	12	1.6	11	5.9	6	1	4
Other farmers	98	13.0	24	12.8	10	1	13
Recreational property owners	46	6.1	3	1.6	2	(1/)	1
Other classified owners2/	402	53.4	12	6.4	9	1	2
Unclassified3/	-	-	3	1.6	2	-	1
All types	753	100.0	187	100.0	152	13	22

1/ Less than 500 acres.

2/ All other land owners whose classification is known but does not logically fit the classes listed above. Examples are owners of land held for residential purposes only, mining claims, and reservoir sites.

3/ Small urban, suburban, and industrial ownerships that are too small to map and classify properly, and ownerships that for other reasons cannot be classified and placed in appropriate categories.

Table 4.- Number of ownerships and area of privately owned land by size of ownership, 1948

Size of ownership	Ownerships		Total land area		Commercial forest land	Noncommercial forest land	Nonforest land
Acres	No.	Pct.	Thousand acres	Pct.	---- Thousand acres ---		
1- 179	656	87.1	35	19.0	26	3	6
180- 379	46	6.1	13	7.1	9	1	3
380- 699	16	2.1	10	5.4	7	1	2
700- 1,299	12	1.6	8	4.4	5	(1/)	3
1,300- 2,599	11	1.5	37	20.1	26	5	6
2,600- 4,999	5	0.7	21	11.4	20	1	-
5,000- 9,999	6	0.8	37	20.1	34	2	1
10,000-29,999	1	0.1	23	12.5	23	(1/)	-
30,000 and over	-	-	-	-	-	-	-
All classified ownerships	753	100.0	184	100.0	150	13	21
Unclassified	-	-	3	-	2	-	1
Total acreage	-	-	187	-	152	13	22

1/ Less than 500 acres.

Table 5.- Commercial forest land by type of ownership and by timber type, 1948

Type of ownership	Total		Timber type			
			Redwood	Douglas fir	Fir	Pine--Douglas-fir--Fir
	Thousand acres	Pct.	-------- Thousand acres ------			
National forest	279	61.9	5	174	(1/)	100
Indian land	4	0.9	4	(1/)	-	-
Other Federal	14	3.1	14	-	-	-
Tax deeded (State)	2	0.4	(1/)	1	-	1
Timber operating company	43	9.6	43	(1/)	-	(1/)
Timber holding company	15	3.3	10	4	-	1
Timber operating individual	9	2.0	1	7	-	1
Timber holding individual	56	12.5	42	8	-	6
Range livestock farming company	-	-	-	-	-	-
Range livestock farming individual	6	1.3	6	-	-	-
Other farmers	10	2.2	9	1	-	(1/)
Recreational property owners	2	0.4	1	1	-	(1/)
Other classified owners	9	2.0	6	2	-	1
Unclassified	2	0.4	2	-	-	-
All types	451	100.0	143	198	(1/)	110

1/ Less than 500 acres.

Table 6.- Privately owned commercial forest land by size of ownership and by timber type, 1948

Size of ownership	Total		Timber type		
			Redwood	Douglas-fir	Pine--Douglas-fir--Fir
Acres	Thousand acres	Pct.	------ Thousand acres ------		
1- 179	26	17.3	20	4	2
180- 379	9	6.0	7	1	1
380- 699	7	4.7	4	2	1
700- 1,299	5	3.3	3	2	(1/)
1,300- 2,599	26	17.3	21	3	2
2,600- 4,999	20	13.3	20	-	-
5,000- 9,999	34	22.7	20	11	3
10,000-29,999	23	15.4	23	-	-
30,000 and over	-	-	-	-	-
All classified ownerships	150	100.0	118	23	9
Unclassified	2	-	2	-	-
Total acreage	152	-	120	23	9

1/ Less than 500 acres.

Table 7.- Commercial forest land by type of ownership and by age class of timber, 1948

Type of ownership	Total		Age class					
			Old growth	Old growth-young growth	Young growth-old growth	Large young growth	Small young growth	Non-stocked 1/
	Thousand acres	Pct.	Thousand acres					
National forest	279	61.9	15	137	54	12	11	50
Indian land	4	0.9	2	2	(2/)	(2/)	(2/)	(2/)
Other Federal	14	3.1	7	4	1	1	(2/)	1
Tax deeded (State)	2	0.4	(2/)	1	-	(2/)	-	1
Timber operating company	43	9.6	29	10	1	2	-	1
Timber holding company	15	3.3	4	8	1	(2/)	1	1
Timber operating individual	9	2.0	4	2	1	1	(2/)	1
Timber holding individual	56	12.5	20	22	1	6	6	1
Range livestock farming company	-	-	-	-	-	-	-	-
Range livestock farming individual	6	1.3	(2/)	2	(2/)	2	(2/)	2
Other farmers	10	2.2	1	1	(2/)	4	1	3
Recreational property owners	2	0.4	(2/)	(2/)	1	1	-	(2/)
Other classified owners	9	2.0	-	2	1	3	1	2
Unclassified	2	0.4	-	-	-	1	1	(2/)
All types	451	100.0	82	191	61	33	21	63

1/ Commercial forest land nonstocked with commercial conifers but covered primarily with minor conifers and chaparral.

2/ Less than 500 acres.

AGE CLASSES OF TIMBER STANDS ON COMMERCIAL FOREST LAND

Old growth

Young growth - old growth

Large young growth

Small young growth

Table 8.- Privately owned commercial forest land by size of ownership and by age class of timber, 1948

Size of ownership	Total		Age class					
			Old growth	Old growth-young growth	Young growth-old growth	Large young growth	Small young growth	Non-stocked
Acres	Thousand acres	Pct.	---------- Thousand acres ----------					
1- 179	26	17.3	7	6	2	6	2	3
180- 379	9	6.0	1	3	(1/)	2	1	2
380- 699	7	4.7	1	4	(1/)	1	(1/)	1
700- 1,299	5	3.3	-	1	(1/)	1	2	1
1,300- 2,599	26	17.3	14	5	1	3	1	2
2,600- 4,999	20	13.3	8	8	1	1	1	1
5,000- 9,999	34	22.7	10	15	2	5	2	(1/)
10,000-29,999	23	15.4	17	5	(1/)	(1/)	-	1
30,000 and over	-	-	-	-	-	-	-	-
All classified ownerships	150	100.0	58	47	6	19	9	11
Unclassified	2	-	-	-	-	1	1	(1/)
Total acreage	152	-	58	47	6	20	10	11

1/ Less than 500 acres.

Table 9.- Commercial forest land by age class of timber and by density of stand, 1948

Age class	Total	Density of stand			
		Dense and semidense	Open	Very open	Non-stocked
	Thousand acres				
Old growth	82	78	2	2	-
Old growth-young growth	191	133	43	15	-
Young growth-old growth	61	41	15	5	-
Large young growth	33	18	11	4	-
Small young growth	21	5	7	9	-
Nonstocked	63	-	-	-	63
Total	451	275	78	35	63

Table 10.- Commercial forest land by timber type and by site quality, 1948

Timber type	Total	Site quality		
		High	Medium	Low
	Thousand acres			
Redwood	143	136	7	-
Douglas-fir	198	47	101	50
Fir	(1/)	-	-	(1/)
Pine--Douglas-fir--Fir	110	41	32	37
All types	451	224	140	87

1/ Less than 500 acres.

Table 11.- Commercial forest land area by timber type, stand-size class, degree of stocking, and ownership, 1948

Timber type and stand-size class[1]	All areas			Degree of stocking[2] and ownership											
				Well-stocked			Medium-stocked			Poorly stocked			Nonstocked		
	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private
	Thousand acres														
Redwood															
Old growth saw timber	100	16	84	88	14	74	10	2	8	2	(3)	2	-	-	-
Young growth saw timber	25	4	21	14	2	12	7	1	6	4	1	3	-	-	-
Pole timber	6	(3)	6	1	-	1	2	(3)	2	3	(3)	3	-	-	-
Nonstocked	12	3	9	-	-	-	-	-	-	-	-	-	12	3	9
Total	143	23	120	103	16	87	19	3	16	9	1	8	12	3	9
Douglas-fir															
Old growth saw timber	115	100	15	87	75	12	21	19	2	7	6	1	-	-	-
Young growth saw timber	40	36	4	28	24	4	10	10	(3)	2	2	(3)	-	-	-
Pole timber	11	8	3	4	3	1	3	3	(3)	4	2	2	-	-	-
Nonstocked	32	31	1	-	-	-	-	-	-	-	-	-	32	31	1
Total	198	175	23	119	102	17	34	32	2	13	10	3	32	31	1
Fir															
Old growth saw timber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Young growth saw timber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pole timber	(3)	(3)	-	-	-	-	-	-	-	(3)	(3)	-	-	-	-
Nonstocked	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	(3)	(3)	-	-	-	-	-	-	-	(3)	(3)	-	-	-	-
Pine--Douglas-fir--Fir															
Old growth saw timber	58	52	6	36	32	4	14	13	1	8	7	1	-	-	-
Young growth saw timber	29	28	1	17	16	1	9	9	-	3	3	-	-	-	-
Pole timber	4	3	1	-	-	-	2	1	1	2	2	(3)	-	-	-
Nonstocked	19	18	1	-	-	-	-	-	-	-	-	-	19	18	1
Total	110	101	9	53	48	5	25	23	2	13	12	1	19	18	1
All types															
Old growth saw timber	273	168	105	211	121	90	45	34	11	17	13	4	-	-	-
Young growth saw timber	94	68	26	59	42	17	26	20	6	9	6	3	-	-	-
Pole timber	21	11	10	5	3	2	7	4	3	9	4	5	-	-	-
Nonstocked	63	52	11	-	-	-	-	-	-	-	-	-	63	52	11
Total	451	299	152	275	166	109	78	58	20	35	23	12	63	52	11

1/ See relationship of stand-size classes to age classes, page 16.
2/ To obtain degree of stocking, Survey density classes were converted as follows: dense and semi-dense -- well stocked; open -- medium stocked; and very open -- poorly stocked.
3/ Less than 500 acres.

PROCEDURES

Area Delineation

To determine the extent, location, and condition of all forest lands in Del Norte County, aerial photographs were delineated on the basis of (1) present cover of vegetation, (2) suitability for growing timber crops, and (3) age class and density of timber stands. The minimum unit classified and mapped under the Federal Survey was forty acres. However, under a cooperative agreement with the State Division of Forestry, classification and mapping were extended to a 10-acre minimum on lands outside the national forest boundary.

The segregation of lands suitable for growing timber crops from other lands was a matter of some difficulty, particularly where commercial conifers were entirely lacking. It was assumed, on the basis of their physical characteristics, that such areas once supported timber stands, and if reforested, would grow timber of commercial quality. While this assumption may be true in most cases, as verified by visible and historical evidence, soil surveys now in progress on timber areas within the redwood region have demonstrated that some nonstocked areas have soils too shallow to support timber growth. Inasmuch as the same situation probably exists throughout this county, some of the nonstocked areas classified in this report as commercial and reserved commercial forest land must reside in the doubtful category until soil surveys provide a basis for final decision.

Transfer to base maps

After photo delineation was completed, Timber Stand Maps were prepared by transferring photo classifications to 7-1/2-minute quadrangle size base maps at a common scale of 2 inches to the mile. Kind and density of vegetation, age structure and density of coniferous timber stands, and other information pertinent to the forest resource were shown. As a final preparation for area measurement other related information, such as political and economic subdivisions, ownership, and commercial timber type boundaries, was marked along east-west transect lines spaced 2 miles apart. Because cutting and fire since the date of aerial photography have caused changes in the timber classifications, adjustments of age-density classes were made along these transect lines after a field examination. This was done so that the class acreages when compiled would show conditions as of the inventory year.

Ownership determination

Information on land ownership in Del Norte County was obtained from the county tax assessment rolls, and other official records of the County Assessor and Tax Collector, using a line sampling technique.1/

1/ Details of the line sampling method used for estimating area and procedure for estimating number of owners are given in "A New Approach to Forest Ownership Surveys," by A. A. Hasel and Adon Poli, Land Economics, Vol. XXV, No. 1, Feb. 1949, pp. 1-10.

Ownership boundaries, taken from county plot maps, were marked along the transect lines drawn on the quadrangle base maps. The proportion of total line traversing an ownership class was taken as the proportion of the total acreage in that particular class. This acreage was classified further by measuring the intercepts of the various classifications of vegetation and timber stands used in the Forest Survey.

Owners of properties traversed by the sample lines constituted the ownership sample. The property records of the county provided the address of the owners, and the acreage of each parcel of land in the sample. The acreage figures were used to classify private ownerships and land area by size. Each sample owner was mailed a questionnaire card by the State Division of Forestry. Answers on these cards provided information used to classify the sample ownerships as to type of ownership. Similar information about the land of nonrespondents was obtained by a field follow-up, in which key informants were questioned in local public offices and in the communities where the owners have this land.

Area measurement and compilation

To estimate areas, parallel lines spaced 2 miles apart were drawn east and west on the quadrangle base maps. Acreage figures were then obtained by recording line intercept measurements of all pertinent subdivisions along each of the sample lines transecting the quadrangles. These subdivisions included age, density, and type of timber stands, and type and size of ownership. The ratio of total line length to total area for the quadrangle provided the factor to convert line segments in inches to area in acres. These acreages were then totaled by county, and adjusted if necessary, to check with the 1940 Bureau of the Census acreages by counties. Estimated acreage figures appearing in the tables were compiled and summarized by means of punch cards and card tabulating equipment.

Stand-size class determination

The national pattern established for the Forest Survey requires the classification of commercial forest land into stand-size classes. To present California forest resource data in terms of stand-size classes, mapped age classes have been grouped as follows:

Age class	Stand-size class
Old growth Old growth-young growth	Old growth saw timber
Young growth-old growth Large young growth	Young growth saw timber
Small young growth	Pole timber
Nonstocked	Nonstocked

The forest stands classified as saw timber by this grouping conform closely to the National Forest Survey definitions. Areas of seedlings and saplings are not shown separately as these areas occurred in such small and widely scattered units that separate classification was not practicable. Those seedling and sapling stands of 40 acres or more which did occur were included with other stand-size classes, chiefly pole timber, and nonstocked.

Site quality determination

Three broad site classes--high, medium, and low--have been used to express the relative capacity of commercial forest land to produce timber crops. One hundred and sixty-four separate field site determinations, which were well distributed over the four major timber types, were grouped into the three broad classes. For each type the number of site determinations in each site class was expressed as a percentage of all observations within the type. These percentages were then applied to the total area by type to provide estimates of relative site quality.

The relationship between the broad site quality classes and site class and site index ratings of commercial forest land is shown in the following table and explained in the appended footnotes.

Broad rating	Redwood and Douglas-fir types		All other types	
	Site class1/	Site index2/	Site class3/	Site index4/
High	I, II	200	IA	200
		170		
	III	140	I	175
Medium			II	150
	IV	110	III	125
Low			IV	100
	V	80	V	75

1/ According to R. E. McArdle and W. H. Meyer in U. S. Department of Agriculture Technical Bulletin 201, October 1930, "The Yield of Douglas-fir in the Pacific Northwest."

2/ The total height that the average dominant Douglas-fir trees reach at 100 years of age.

3/ According to D. Dunning in Station Research Note No. 28, December 1, 1942, "A Site Classification for the Mixed-Conifer Selection Forests of the Sierra Nevada."

4/ The total height that the average dominant trees reach at 300 years of age.

ACCURACY OF ESTIMATE

Estimates of acreages in the various classes of land as determined by Forest Survey procedures are subject to two general types of errors: (1) non-sampling errors in photo classification, mapping, tabulation, computation, and compilation, and (2) sampling errors which arise from taking a sample rather than making a complete inventory. Errors of the first type are kept to a minimum by frequent checking and close supervision of all field and office work. If these non-sampling errors are negligible or compensating, then the sampling errors provide measures of the reliability of the acreage estimates and can be computed by statistical methods. Magnitudes of the sampling errors depend on the intensity of the sampling and the variability of the data.

For the principal classes of forest land of Del Norte County, the sampling errors 2/ are as follows:

Class	Sampling error	
	Acres	Percent
Forest land	16,113	2.62
Commercial forest land	12,854	2.85
Noncommercial forest land	7,874	5.18

Statistics of forest area by age class, type, and ownership classes presented in this report are subject to increasing sampling errors as the class acreages decrease. A partial range of area sampling errors applicable to this report is shown below:

Acres in class	Sampling error in percent
10,000	21.0
20,000	14.5
40,000	10.5
100,000	6.5
200,000	4.5
500,000	3.0
1,000,000	2.0
2,000,000	1.5

2/ For one standard error; that is, the chances are 2 out of 3 that the class acreages as determined by 100-percent measurement lie within the limits of the calculated acreages plus and minus the amounts shown.

DEFINITION OF TERMS

Area

Forest land area. Includes (a) lands which are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or exerting an influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which have not been developed for other use; (c) afforested areas; and (d) chaparral areas.

Commercial forest land area. Forest land which is (a) producing, or physically capable of producing usable crops of wood (usually saw timber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land area. Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land and (b) incapable of yielding wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Chaparral land area. Lands supporting heavily branched dwarf trees or shrubs, usually evergreen, the crown cover of which normally covers more than 50 percent of the ground and whose primary value is watershed protection. The more common chaparral constituents are species of Quercus, Cercocarpus, Garrya, Ceanothus, Arctostaphylos, and Adenostoma. Types dominated by such shrubs as Artemesia, Opuntia, Purshia, Guttierrezia or semidesert species are not commonly considered chaparral.

Nonforest land area. Land that does not qualify as forest land. Includes land which has never supported forest growth; land from which the forest has been removed from less than 10 percent stocking and has been developed for other use, such as grazing, agricultural, residential, or industrial; all land in thickly populated urban and suburban areas; and water classified as land by the Bureau of Census.

Timber stand classifications

Age classes of commercial conifer stands[3/] on commercial forest land.

1. Old growth. Mature trees[4/] compose more than 80 percent of the conifer canopy.

3/ Stands composed of the following species, singly or in combination: redwood, Douglas-fir, ponderosa pine, sugar pine, Jeffrey pine, true firs (red and white), incense cedar, western white pine, mountain hemlock, and lodgepole pine.

4/ All trees that can be considered as having passed their optimum growth.

2. Old growth-young growth. Mature trees compose from 50 to 80 percent of the conifer canopy.

3. Young growth-old growth. Mature trees compose 20 to 50 percent of the conifer canopy.

4. Young growth. Mature trees compose less than 20 percent of the conifer canopy.

   a. Large young growth. More than 5 percent of the immature trees are larger than 11 inches d.b.h.

   b. Small young growth. Ninety-five percent or more of the immature trees are less than 11 inches d.b.h.

Stand-size classes of timber stands on commercial forest land.

1. Saw-timber stands. Defined as stands having a minimum net volume per acre of 4,000 board feet, International 1/4-inch rule, in saw-timber trees (11.0 inches d.b.h. and larger for all species).

   a. Old-growth saw-timber stands. Saw-timber stands in which over 50 percent of the net board-foot volume is in old growth saw-timber trees.

   b. Young-growth saw-timber stands. Saw-timber stands in which 50 percent or more of the net board-foot volume is in young-growth saw-timber trees.

2. Pole-timber stands. Defined as stands failing to meet the saw-timber stand specification, but at least 10 percent stocked with pole-timber and larger trees and with at least half the minimum stocking in pole-timber trees (5.0 to 10.9 inches d.b.h.).

3. Seedling and sapling stands. Defined as forest stands not qualifying as either saw-timber or pole-timber stands but having at least 10 percent stocking in seedlings and saplings (0 to 4.9 inches d.b.h.).

4. Nonstocked areas. Defined as areas of forest land not qualifying as saw-timber, pole-timber, or seedling and sapling stands.

Density classes of commercial conifer stands on commercial forest land.

1. Dense and semidense. Commercial conifers cover 50 percent or more of the ground space.

2. Open. Commercial conifers cover from 20 to 50 percent of the ground space.

3. Very open. Commercial conifers cover from 5 to 20 percent of the ground space.

4. Nonstocked. Commercial conifers cover less than 5 percent of the ground space.

Timber type. An extensive area of commercial or withdrawn commercial forest land characterized by a predominant conifer species or group of conifer species. Other vegetation (such as hardwood and chaparral areas) and/or nonvegetation types (such as barren areas) may also occur in subordinate amounts within the same area.

Commercial timber types:

a. Redwood. Areas with redwood comprising 20 percent or more of the commercial conifer cover.

b. Douglas-fir. Areas with Douglas-fir comprising more than 80 percent of the commercial conifer cover; or mixtures of Douglas-fir and the true firs in which Douglas-fir comprises 20 percent or more of the commercial conifer cover.

c. Pine--Douglas-fir--Fir. Areas with mixtures of the commercial pines and either Douglas-fir or the true firs in which the pines, Douglas-fir, and true firs each comprise 20 percent or more of the commercial-conifer cover.

d. Fir. Areas with true firs (white and red) comprising more than 80 percent of the commercial conifer cover; or mixtures of the true firs and lodgepole pine, mountain hemlock, or western white pine, in which the true firs comprise 20 percent or more of the timber cover.

Other timber and vegetation types:

a. Coniferous woodland. Areas with such trees as knobcone pine, digger pine, juniper, and scattered and scrub trees of other conifer species, covering more than 5 percent of the ground space and predominant over hardwoods that may partly compose the cover.

b. Hardwoods (woodland). Areas with hardwood trees (oaks, madrone, etc.), covering more than 50 percent of the ground except where in mixture with commercial conifers or herbaceous vegetation.

c. Woodland-grass. Areas with hardwood trees and herbaceous vegetation occurring in mixture - without commercial conifers - and the trees covering from 5 to 80 percent of the ground area and predominant over minor conifers present in the cover.

d. Shrub and herb types consist of the following, where not in mixture with minor conifers or hardwood.

1. Chaparral. Areas with such shrubs as manzanita, ceanothus, scrub oaks, etc., covering more than 50 percent of the ground.

2. Coastal sagebrush. Areas with such shrubs as California sagebrush, coyote brush, and wild buckwheat covering more than 50 percent of the ground.

3. Grass. Areas with grasses and associated herbaceous vegetation covering more than 50 percent of the ground except where the type qualifies as woodland-grass.

4. Marsh. Areas with herbaceous vegetation characteristic of very poorly drained areas.

Nonvegetation types:

a. Barren. Bare ground, rocky areas, river beds, mine dredgings, and talus essentially devoid of vegetation.

b. Cultivated, urban, and industrial. Areas that are under cultivation or are used for residential or industrial purposes.

Ownership classifications

National forest. Federal lands which, by executive order or statute, have been designated as national forests, purchase units, or experimental areas or have been placed under the administration of the Forest Service.

Indian land. Indian tribal lands and trust allotments. Lands held in trust by the Federal Government but administered and managed for Indian tribal groups or allotted in trust to individual Indians.

Other Federal. All other lands owned by the Federal Government not classed as national forest or Indian land.

Tax deeded. Formerly privately owned land but now deeded to the State for nonpayment of taxes.

Other State, county, and municipal. Lands in State, county, or municipal ownership other than tax-deeded.

Timber operating company. A corporation actively engaged in commercial logging and milling of timber as a major enterprise.

Timber holding company. A corporation holding timber land for future commercial timber operations. The timber may be held for the company's own future use or for sale to other operators.

Timber operating individual. A person whose major enterprise is commercial timber operations. This includes individuals logging timber, operating a large or small sawmill, or splitting timber commercially for sale.

Timber holding individual. A person holding timber land for future commercial timber operations. The timber may be held for his own future operations or for sale to other operators.

Range livestock farming company. A corporation engaged primarily in range livestock farming operations.

Range livestock farming individual. A person whose major enterprise is range livestock farming.

Other farmers. Persons or corporations that have farming as their major activity, but whose principal agricultural enterprise is not range livestock farming.

Recreational property owners. Persons or corporations holding land principally for recreational use.

Other classified owners. All other land owners whose classification is known but does not logically fit the classes listed above. Examples are owners of land held for residential purposes only, mining claims, and reservoir sites.

Unclassified. Land ownerships in urban, suburban, and industrial settlements that are too small to map and classify properly, and ownerships that for other reasons cannot be classified and placed in appropriate categories.